

### ABSTRACT OF THE DISCLOSURE

A method of assembling tyres for vehicle wheels includes disposing a carcass structure on a primary drum, disposing a belt structure on an auxiliary drum, picking up the belt structure from the auxiliary drum to transfer the belt structure to a position coaxially centered with respect to the carcass structure, shaping the carcass structure, applying a tread band, and applying a pair of sidewalls. At least one of applying the tread band and pair of sidewalls is carried out by winding up at least one continuous strip element of elastomer material in contiguous circumferential coils around the carcass structure. An apparatus for assembling tyres for vehicle wheels includes at least one primary drum, the auxiliary drum, a transfer member, at least one unit for applying the tread band onto the belt structure, and at least one unit for applying the pair of sidewalls against lateral walls of the carcass structure.